REMARKS

In summary, claims 1-23, 25-33 are pending. Claims 1-2, 4-13, 15, 17, 23, 25-30 and 32 are rejected under 35 U.S.C. 35 § 103 over Zaremba and further in view of Stevens. Claim 14 is rejected under 35 U.S.C. 35 § 103 over Zaremba and further in view of Stevens and Fletcher. Claims 3, 16, 31, and 33 are rejected under 35 U.S.C. 35 § 103 over Zaremba and further in view of Stevens and Pongracz. Claims 1, 15, 22, and 32 are rejected under 35 U.S.C. 35 § 103 over Zaremba and further in view of Tamer. Applicant respectfully traverses the rejections. Claims 1, 15, 22, and 32 are hereby amended. No new matter is added. Support for the claim amendments is found, for example, in Applicant's application at page 10, lines 5 through page 11, line 15.

No present system exists for performing off-line collection and management of backup file subsets for different types of restore operations from the utilization of solely incremental backup systems. Applicant's claimed invention is directed to a way to restore a target object such as a volume, directory or a pre-defined collection of files to a particular time by restoring the last full backup embodying the backup target, the last computed cumulative backup embodying the backup target and possibly the incremental backups after the last computed cumulative backup, if there are any that relate to change in the backup target, thereby bounding the restore time. Bounding the restore time increases the utility and efficiency of incremental backup systems.

The computed cumulative backup is formed off-line and from calculations with only previously generated full back up files and incremental files, and not by a comparison with original target objects to a previous back up file. This improvement to incremental backup systems promotes efficiency through the use of the incremental backup files to produce cumulative backup files and reduces system load.

Claim Rejections - 35 U.S.C. §103

Claims 1-2, 4-13, 15, 17-23, 25-30, and 32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,647,399, in the name of Zaremba and further in view of U.S. Patent No. 6,145,088 in the name of Stevens.

Claims 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,647,399, in the name of Zaremba and further in view of U.S. Patent No. 6,145,088 in the name of Stevens and further in view of U.S. Patent No., 6038,379 to Fletcher.

Claims 3, 16, 31, and 33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,647,399, in the name of Zaremba and further in view of U.S. Patent No. 6,145,088 in the name of Stevens and further in view of U.S. Patent No. 6,073,128 to Pongracz.

Claims 1, 15, 22, and 33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,647,399, in the name of Zaremba and further in view of U.S. Patent No. 6,035,412 in the name of Stevens.

Independent claims 1, 15, 22, and 33 are herein amended to indicate that generation of the at least one cumulative backup file is performed off-line and from calculations with only the generated full back up file and said generated at least one incremental file and not comparison with the set of objects. It is respectfully submitted that the applied art, either individually or combined, neither discloses nor suggests this subject matter.

None of the applied art teaches or suggests that a calculated cumulative back up file is calculated with only, or only at most, a previously generated full backup file and at least one previously generated incremental file. Each of the applied art is silent to how its respective cumulative back up file is created. Although both Stevens and Tamer teach computer file/memory/database/ object backup functions occurring offline, neither discloses how that is accomplished offline.

Zaremba teaches incremental back ups, and that prior systems may form cumulative backups as that backup having all changes since a full backup. Zaremba however, not teach how that was accomplished in the prior art, and that being essentially of an extended time incremental comparison, that of actually comparing the prior full backup file to the present state of the targeted computer object.

The backup incremental files of Zaremba and its incorporated by reference document "Using ADSM to Back Up Databases", IBM Publication SG24-4335-03, teach that during an offline backup, the target object (Database) is closed to other users and uses, thereby making the backup operation simple. If closing the target object to other users was necessary (database lock down), therefore the set of objects (those objects to be backed up) must have been used in creating any of the back up files, whether in a full, incremental or cumulative way. This is directly opposite to the teaching of the present invention that permits the target objects to stay online during the cumulative backup file generation, but more importantly, that the cumulative file generation does not require any connection, calculation, or as claimed, comparison with the set of objects in first place, only calculations involving their backup image and at most, the previously generated full backup file and/or incremental backup files. It is this functionality that permits the generation of the cumulative backup file to be actually offline, and advancement in the field of incremental backup systems to be accomplished.

As each of the references and combinations presented by the Examiner fail to include, teach or suggest, each and every element of the amended independent claims, Applicant respectfully requests withdrawal of rejection under 35 U.S.C. § 103.

The remarks and arguments provided above with respect to claims 1, 15, 22 and 23, also apply to the rest of the claims. In review of the above remarks, arguments and amendments, it is requested that the rejection of claims 1-23, 25-33, under 35 U.S.C. § 103, be reconsidered and withdrawn.

CONCLUSION

It is requested that the forgoing amendments, arguments, and remarks be entered, and in view thereof, it is respectfully submitted that this application is in condition for allowance. Reconsideration of this application and an early Notice of Allowance are respectfully requested. In the event that the Examiner cannot allow this application for any reason, the Examiner is encouraged to contact the undersigned attorney to discuss resolution of any remaining issues.

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